1.1 INTRODUCTION

This Application for Certification (AFC) for the El Segundo Power Redevelopment (ESPR or Project) has been prepared in accordance with the California Energy Commission's (CEC's) Power Plant Site Certification Regulations (August 2000). Moreover, the AFC has been prepared by the ESPR team to be a user-friendly document for Commission staff, other agencies and the public. This executive summary provides an overview of the project in accordance with Appendix B, Section (a) of the regulations. The following features of the ESPR facilitate CEC, other agency, and public review, and greatly enhance the quality and value of the ESPR:

- Replacement of an existing 1950s vintage steam generator power plant, utilizing established facilities at a location already adapted to power plant operations.

- Project design that reflects consideration of the local community's and other state and federal agencies' interests.

- Prepared CEC Data Adequacy checklists at the end of Chapter 3 (Project Description) and each subsection of Chapter 5 (Environmental Information) indicating the location of the material meeting the requirements for each item on the checklist.

- Stipulated conditions for each environmental discipline in Section 5.0, and for facility design (in Section 3) taken from the CEC's General Conditions, released in the Mountain View Power Plant Project (00-AFC-1) and modified to fit the characteristics of ESPR. The general conditions are stipulated in order to further cooperation and efficiency with the CEC staff and process.

- Open, candid, and focussed discussion of the true issues requiring CEC, other agency, and public input to finish the refinement of ESPR into a beneficial and enhanced electric generation project.

- Much needed additional power in the western Southern California Edison load center, replacing aged, former RMR, Units 1 and 2 with increased-efficiency combined cycle technology.

1.2 PROJECT OVERVIEW

El Segundo Power II LLC (ESP II) will expand an existing onsite gas-fired power steam plant by replacing two 1950s vintage steam generation units with two combustion turbines and one steam turbine. The new additions consist of a nominally rated 630 MW combined cycle electric generating facility on the property of the El Segundo Generating Station (ESGS) in El Segundo, Los Angeles County, California. The ESGS site area is approximately 32.8 fenced acres located southwest of Los Angeles International Airport adjacent to Santa Monica Bay. Please refer to Figure 3.2-1. (Note: the figures referenced in this Executive Summary are contained at the end of Section 1.0 as well as in their respective sections).

The Project will be constructed and operated without ratepayer support as a "merchant plant." The project will supply capacity and energy to California's restructured electric market. ESP II anticipates the new combined cycle units' output will be sold both into the California Power Exchange and to large wholesale customers.

ESP II's indirect parent companies, NRG Energy, Inc., and Dynegy Power Corp., entered into an asset purchase agreement with Southern California Edison Company (SCE) by which El Segundo Power, LLC purchased ESGS in 1998. ESGS has been operating as an electric generating station since May 1955. The facility is currently comprised of four conventional gas-fired, electric steam generating units. The plans for the proposed project include demolition of the existing power blocks of Units 1 and 2 and construction of a combined cycle plant within the footprint of the demolished units. Units 3 and 4 will remain unchanged. Net station net power output will increase approximately 280 MW with the addition of the combined cycle plant. Please refer to Figure 5.13-4a for a photographic reproduction of the site prior to construction activities, and Figure 5.13-4b for a visual simulation of the site after construction.

The new combined cycle units (which will be numbered Units 5, 6, and 7) will consist of two combustion turbine electric generators (new Units 5 and 7), two heat recovery steam generators (HRSGs), and one steam turbine electric generator (new Unit 6). The Project's related linear facilities include potable and reclaimed water lines, a sanitary sewer discharge line, and an aqueous ammonia supply line. Project components also include offsite parking and staging areas for use during construction. The locations of these linear features and offsite facilities are identified and shown on Figure 3.2-1.

Heat rejection for the steam turbine generator (STG) will be accomplished with a deaerating, wet surface condenser connected to the existing ocean water circulating system. Natural gas will be the only fuel utilized by the two new combustion turbine generators (CTGs). Natural gas will be supplied to the combined cycle unit by Southern California Gas Company (SoCalGas), the current supplier of natural gas to the El Segundo Generating Station. Natural

gas will be provided utilizing existing pipelines serving the project; there is no new offsite gas pipeline proposed as part of the ESPR project.

Electricity generated by ESPR will be delivered to the Southern California Edison (SCE) substation located within the fence line on the ESGS property. From SCE's El Segundo 230 kV substation, electricity will be transmitted to users by the existing transmission and distribution network. There are no new transmission lines required or proposed for the project.

Water will be supplied to ESPR from three sources: potable city water from the City of El Segundo; reclaimed water for make-up from the West Basin Municipal Water District; and Santa Monica Bay seawater from the existing intake structure currently serving existing Units 1 and 2. New pipelines for city water and reclaimed water will be constructed to supply needs of the redeveloped facility.

Sanitary wastes will be directed to a new interconnection with the municipal sanitary sewer operated by the City of Manhattan Beach Public Works Department. Plant process wastewater will be directed to the existing retention pond on the power plant property and effluent from this pond will be discharged to Santa Monica Bay via the existing circulating water system outfall.

This Application for Certification has been prepared in accordance with the CEC's regulations and provides:

- A detailed description of the El Segundo Power Redevelopment Project
- An assessment of the anticipated project impacts on the existing environment
- Stipulated conditions from the CEC's General Conditions, as well as any additional applicant-committed measures necessary to mitigate project-specific impacts or provide environmental enhancements
- A discussion of compliance with applicable laws, ordinances, regulations and standards.

The remainder of this Executive Summary summarizes the more detailed information presented in the balance of the AFC.

1.3 FACILITY LOCATION AND DESCRIPTION

1.3.1 Facility Location

The project will be constructed at the El Segundo Generating Station (ESGS), an existing power plant owned by El Segundo Power LLC and operated by NRG El Segundo Operations,

Inc. The site is bordered by Vista Del Mar to the east, 45th Street in the City of Manhattan Beach on the south, Santa Monica Bay on the west, and a Chevron marine terminal on the north. The ESGS site is approximately 32.8 acres in size. The location of the generating station, associated pipeline routes, and offsite worker parking and equipment staging areas, are shown in Figure 3.2-1. Primary access to the site will be from the north on Vista Del Mar via West Imperial Highway, Glenn Anderson Freeway (I-105), and the San Diego Freeway (I-405).

The ESGS total site is comprised of three parcels. ESGS generating units are located on existing APN 4138-029-002, the primary parcel involved in ESPR. Please refer to Section 3.2 for a discussion of all three parcels. The ESGS site is located at Township 3 South, Range 15 West on the Venice USGS Quadrangle Map. There is no applicable USGS Section number.

Appendix O includes a list of current Assessor's Parcel Numbers and owners names and addresses for all parcels within 500 feet of linear features, and within 1000 feet of the proposed plant site.

1.3.2 Facility Description

The El Segundo Power Redevelopment Project involves the demolition and removal of existing Units 1 and 2 on the El Segundo Generating Station site, except for the steam cycle heat rejection system (i.e., circulating water system) which utilizes water from the Santa Monica Bay. Following the demolition/removal portion of the redevelopment effort, a new combined cycle power plant will be constructed on site with the addition of Units 5, 6, and 7 in the location previously occupied by Units 1 and 2. Existing Units 3 and 4 will remain unchanged.

Units 5 and 7 will be General Electric Model PG7241FA combustion turbine generators (CTGs), each with an ISO base load gross output of 171.7 MW. Each CTG will be designed and constructed to burn a single fuel (i.e., natural gas) with an evaporative cooling system installed on the inlet air for use when the ambient temperatures exceed 59^{o}F. Gross output of each hydrogen-cooled generator will be increased to a peak load of 183.4 MW with steam injection (at 59° F and site elevation).

A combined cycle configuration will be established with the addition of HRSGs to the exhaust outlets of Units 5 and 7 and the addition of the Unit 6 steam turbine generator. Unit 6 will be equipped with a General Electric reheat, double flow, down exhausting condensing steam turbine with nominal throttle steam conditions of 1,815 psia, 1050^{o}F, and 1050^{o}F reheat temperature and a hydrogen-cooled generator with a peak generating output of approximately 280 MW (STG). Peak generating output of the STG will be accomplished with supplemental firing of the HRSGs. The use of combined cycle technology, replacing the

older simple boiler design of Units 1 and 2, reflects a tremendous enhancement to the efficient use of ESGS resources.

A dry, low NO_x (DLN) combustor system will be used to control the nitrogen oxide (NO_x) concentration exiting each CTG. As an additional post-combustion NO_x control system, a selective catalytic NO_x reduction (SCR) system will be provided in each HRSG to further reduce the NO_x concentration. The SCR system for each HRSG will inject an aqueous ammonia solution into the exhaust gas stream upstream of a catalyst bed that will reduce the nitrogen oxides to inert nitrogen and water. An oxidation catalyst system will also be incorporated into the air quality control system to control emissions of carbon monoxide (CO).

Aqueous ammonia is currently utilized and stored in a 20,000 gallon tank on the El Segundo Generating Station site, but the addition of SCRs on Units 5 and 7 will require a significant increase of ammonia usage. To prevent increased truck traffic deliveries of aqueous ammonia to the plant site, the Project proposes to purchase aqueous ammonia from the adjacent Chevron Refinery and install a pipeline directly connecting the refinery aqueous ammonia production and storage system to the ESPR on-site storage tank. This reflects an enhancement to existing conditions, as it will remove the need to transport ammonia on public streets.

1.3.3 Site Layout

Plant general arrangement is depicted on Figure 3.4-3A and a three dimensional view of the power block of the combined cycle plant is illustrated in Figure 3.4-3B. These drawings show the location and size of the proposed combined cycle plant facilities.

- The power block (i.e., two CTGs, two HRSGs and associated stacks, and the single STG) will be constructed in an area of about 5.5 acres within the 32.8 fenced acres that comprise the ESGS. The two exhaust stacks will have a height of 250 feet above grade to comply with air quality standards.

- Additional land at one site, currently being used as a tank farm is being purchased to provide laydown areas for construction.

Supplemental firing with the use of duct burners provides additional heat for increased steam generation up to and including ASME Code permissible overpressure operation to achieve peak plant output.

1.3.4 Heat Rejection System

Power cycle heat rejection will consist of a two-pass deaerating, wet surface condenser and a once-through circulating water system using water from the Santa Monica Bay for cooling. The existing circulating water system intake structure including pumps, valves, and the inlet and outlet piping previously utilized by Units 1 and 2 will be reused by the new combined cycle plant. The circulating water flow rate will remain the same and the temperature difference across the intake and outfall will stay within the 20°F limit of the California Thermal Plan.

1.3.5 On-site Transmission

Three new generator step-up transformers will be connected to the existing 230 kV plant switchyard via aboveground lines supported from steel structures. The aboveground generator lead lines will extend from the new generator step-up transformers to the onsite plant switchyard. The aboveground lines will follow the same path as the existing overhead lines associated with Units 1 and 2 and will not leave the site except where they enter directly into the adjacent switchyard.

There are no new transmission lines required for the project. Existing capacity for transmission in the region will readily accommodate and deliver electric power from Units 5, 6, and 7. In part this is a result of the replacement nature of the power where Units 5, 6, and 7 are replacing the power previously delivered from the site by Units 1 and 2. This is also in part due to the location of ESGS in a load center. Breakers and circuit control features will be slightly modified to ensure power is delivered to the SCE grid in accordance with reliability and operating criteria.

1.4 PROJECT SCHEDULE

Construction and start-up is expected to take 20 months, preceded by a four to six month site preparation phase.

1.5 PROJECT OWNERSHIP

- Owner - El Segundo Power II LLC
- Contracted Operator - El Segundo Operations Inc.
- Transmission Facility Ownership - Southern California Edison.

1.6 ENVIRONMENTAL CONSIDERATIONS

Seventeen environmental disciplines and/or resource areas were evaluated during the development of this AFC. The environmental assessments included identification of the affected environment, environmental consequences, mitigation measures, and applicable laws, ordinances, regulation, and standards (LORS). The analyses are included in Section 5.0. The results of the analyses indicate that potential impacts can be mitigated to a level of insignificance. Moreover, numerous enhancements are proposed in various environmental disciplines, either as part of the project description or through proposed conditions of certification.

Utilizing an existing power plant site, replacing existing aged and low efficiency Units 1 and 2, and utilizing existing natural gas supply and transmission interface systems for Units 1 and 2, allows the project to have minimal impacts and in fact provide an overall benefit by the greatly increased efficiency of combined cycle technology. In the areas of Water Resources and Biological Resources, the existing seawater cooling system will provide twice the amount of power it is currently capable of, using the already minimal-impact, Best Available Technology, sea water system. The project will remove the existing discharge of sanitary waste from the ESGS site to the ocean and begin sending ESGS sanitary waste to a municipal treatment facility. Aged structures and equipment will be replaced by a less massive, new facility thus enhancing visual resources. The project will also use ammonia from the adjacent Chevron refinery, which will be brought onsite via a pipeline entirely within private property. This removes the need to bring in ammonia for Unit 3 via vehicles on public highways. Table 1-1 summarizes these benefits.

TABLE 1-1

ENVIRONMENTAL BENEFITS OF ESPR

Key Advantageous Features of Project

ESPR utilizes an existing power plant site at beneficial grid location

ESPR is a replacement of an old, less efficient facility

ESPR utilizes the existing support systems such as seawater cooling, natural gas supply, and electric transmission.

Resulting Environmental Benefits or Enhancements of Project

More efficient use of water resources

Use of existing BAT sea water intake structure

Elimination of sanitary discharge into ocean

Replacement of aged facility with modern new one

Increased efficiency in the conversion of Natural Gas to Electricity

Rebuild uses same physical location of existing resource

Surrounding environment congruent with power generation land use

No new electric transmission line or gas supply pipeline

These key environmental benefits, and others, are explored in Section 1.7.1, below. In addition to these benefits, no unmitigated significant impacts are identified in any of the seventeen environmental disciplines.

1.6.1 Key Issues in the Environmental Disciplines

In an effort to be candid and cooperative, thus assisting the siting process by allowing focused analysis on areas requiring such focus, the following key issues are identified for the ESPR AFC process:

1. Use of street sweeping as a PM_{10} emission offset
2. The aggressive and crisis-responsive construction schedule for the project
3. The regulatory treatment of the use by ESPR of the existing seawater cooling system.

1.7 KEY BENEFITS

1.7.1 Environmental

The proposed project has been designed to provide several unique environmental benefits. Many of the benefits are derived from continued use of the existing power plant site. The facility and much of the infrastructure necessary for the project has been in place since the 1950s.

Air Quality

The project design incorporates the use of clean burning natural gas as its fuel source; emissions will be controlled using Best Available Control Technology. In addition, emission increases will be fully offset, thereby providing air quality benefits to the area. The rate of emissions of controlled pollutants will be substantially reduced from that of the existing units.

Water Resources

ESPR will continue the beneficial use of the existing seawater cooling system for Units 1 and 2 without modifying the intake and outfall structures. The flow rate through the system will not increase. Because this existing system has been consistently approved for NPDES

renewal, and in fact is cited for its use of velocity cap technology and for its standard-setting monitoring program, ESPR clearly meets stringent Clean Water Act and Porter Cologne Act standards. The rate of emissions of controlled pollutants will be substantially reduced from that of the existing units.

Significantly, ESPR involves the removal of discharge of ESGS sanitary wastewater to the ocean. A new sanitary wastewater connection pipeline will transport sanitary waste from the ESGS offsite to the local municipal wastewater treatment facility.

Finally, by utilizing reclaimed water for make-up feed water, ESPR makes better use of water resources.

Biological Resources

By using an existing, low-impact Best Available Technology (BAT) seawater system in a dramatically more efficient manner, ESPR provides an overall net benefit by generating more power within the currently permitted biological impacts. Moreover, the biological impacts of ESPR, like the existing impacts of Units 1 and 2, are insignificant. By closing the existing ESGS sanitary treatment facility, the potential for accidental discharges of sanitary waste is also removed. ESPR also proposes a study to determine the effectiveness of methods of reducing impacts of heat treatment, an environmental enhancement that could affect operation of power plants up and down the coast.

Hazardous Materials and Public Health

ESPR will remove the need to truck ammonia into the ESGS site. Currently, Unit 3 has SCR installed and trucks deliver ammonia to the ESGS site. The addition of an ammonia supply pipeline from one adjacent Chevron property will reduce such transportation to a back-up basis.

Visual Resources

ESPR involves replacement of an aged, old facility with a less massive, modern, new facility. Stack height is increasing slightly, however, the reduction in the wide shoulder point elevation of the facility results in a less massive obtrusive visual presence. Development remains on the northern end of the ESGS site, farthest from the residential Manhattan Beach area.

1.7.2 Employment

The project will provide for a peak of 422 construction jobs over a 20 month period and 50 skilled positions throughout the life of the power plant. In addition to direct employment, ESPR will require and use the services of regional firms for major maintenance and overhauls, plant supplies, and other support services throughout the life of the facility.

1.7.3 Tax Base

ESPR will be a significant property tax contributor supporting the services and programs of the local communities.

1.7.4 Efficient Energy

ESPR will provide a highly efficient and environmentally responsible source of reliable electricity to meet the growing demands of California and the Los Angeles Basin. Moreover, by replacing the less efficient, older Units 1 and 2 with combined cycle technology, the efficiency benefits of the ESPR are compounded.

1.8 LIST OF CONTRIBUTORS

This Application for Certification to the California Energy Commission for the El Segundo Power Redevelopment Project was prepared by numerous contributors including the following key contributors:

Company/Affiliation	Name	Responsibility
NRG Development Company	Scott Magie	Director
Dynegy Marketing and Trade	Ron Cabe	Director
Livingston & Mattesich	Emilio E. Varanini, III	Legal Counsel
	John McKinsey	
Black & Veatch	Shahid Qadri	Project Engineer
	David Crabtree	Mechanical Engineering
	Cathy Weber	Civil Engineering
	Craig S. Gates	Electrical Engineering
	Mark M. Petersen	Geotechnical Engineering
	Bruce Larkin	Chemical Engineering
URS Corporation	Terrell Gault	Project Principal
	Tim Murphy	AFC Project Manager

Company/Affiliation	Name	Responsibility
	Michael Hatch	Geologic Hazards and Resources
	George Piantka and David Marx	Hazardous Material Handling and Waste Management
	Robert Collacott	Water Resources
	Anne Knowlton	Biological Resources
	Brian Hatoff	Cultural and paleontological Resources
	Charles Smith	Traffic, Transportation, and Socioeconomics
	Mari Ledesma	Land Use, Cumulative Impacts and LORS
	Cindy Poire	LORS
	Mike Greene	Noise
	Dan Kringel	Public Health
	Judi Billey	Document Coordination
	Sally Lyons	Word Processing
Sierra Research	Gary Rubenstein	Air Quality
	Tom Andrews	Air Quality Modeling
RBF	Kevin Thomas	Visual Resources
Arcadis, Geraghty & Miller	Denise Clendening	Worker Safety